

I. INTRODUCTION

Research team members at the Georgia Institute of Technology developed this Countermeasure Handbook as a supplemental guide to be used in the State of Georgia fatal crash study portion of a Federal Highway Administration (FHWA) pooled fund study. The countermeasure list is not all-inclusive, but rather represents feasible engineering-based improvements that can be implemented. As a result, several viable countermeasures such as education and stricter driving laws were not candidates for the handbook.

The Georgia study includes a subjective analysis by which each individual crash is evaluated by qualified traffic engineering experts in an effort to determine feasibility and/or effectiveness of the application of a countermeasure for a specific crash. This countermeasure evaluation departs from a common countermeasure evaluation method where a crash type is paired with feasible countermeasures. By evaluating the individual countermeasures at a microscopic level, the research team hopes to identify realistic countermeasure applications. For example, often a run-off-road crash may end when the errant vehicle impacts a tree adjacent to the roadside. The countermeasure suggested for this type of crash would be to remove the obstacle (in this case the tree) and widen the clear zone. Clearly improving the clear zone is a good candidate countermeasure. If the individual crash is evaluated, however, the reviewer may determine that an impaired driver exited the road after crossing an opposing lane (somehow managing to avoid a head-on collision) and then traversed a considerable distance well beyond a reasonable clear zone before impacting the tree. In this example, it is probable that no countermeasure would have prevented the crash. This is the type of detail the Georgia Tech research team seeks to identify and evaluate supplemented by the use of this Countermeasure Handbook.

II. COUNTERMEASURES

Numerous feasible engineering countermeasures may be considered for reduction of crashes or crash severity. During the early stages of this research project, Georgia Tech representatives met with representatives of the Georgia Department of Transportation (GDOT) to identify reasonable countermeasures for inclusion in this study. Table 1 includes a list of the countermeasures summarized in this handbook. In addition, Appendix A provides supplemental information regarding past research on each specific countermeasure.

Table 1 also includes a column that suggests (based on past research and engineering judgement) suitable conditions for applying the countermeasures. In addition, the subjective analyses proposed for this research includes an effectiveness scale. Two of the evaluation categories are “No Effect” and “Not Applicable.” During a pilot study to assure repeatability of results using numerous reviewers, the distinction between these two categories confused the analysts. As a result, Table 1 includes a third column that discusses conditions where the countermeasure is not applicable.